REMARKS/ARGUMENTS

Based on the Final Office Action dated October 7, 2003, claims 1, 4-34,36-48 were pending. Claims 17, 31 and 47 were allowed. Claims 1, 4-16, 18-30, 32-34, 36-46 and 48 were rejected. Claims 2-3 and 35 were cancelled.

Applicants thank Examiner Smith for the informal interview on December 16, 2003. Based on the examiner's comments during the interview, independent claims 1, 19 and 33 have been amended to clearly define the "frame" as having reflecting surfaces. In addition, recitations of the membrane boarders and the integrated single structure of the frame and the membrane have also been added. The added recitations are fully supported in Figures 3-5.

Claims 14, and 44 are presently cancelled.

Claims 17, 31, and 47 have been written in independent form.

New claims 49-51 recite chamfered edge, which is fully supported in the specification. There is no new matter added. Reconsideration of currently pending claims 1, 4-13, 15-34, 36-43, and 45-51 is respectfully requested.

Claim Rejections Under 35 U.S.C. § 103 (a)

Claims 1, 5-10, 14-16, 19, 21-24, and 28-30 were rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. 4,754,139 to Ennulat et al.

Ennulat discloses an infrared sensor that is substantially different from the infrared sensor of the present invention. Ennulat's sensor comprises an array of radiation concentrators 1 positioned directly above but spaced from a plurality of detectors 4, the detectors being supported on a detector support structure 2. (see Column 4, lines 44-49). The support structure 2 is a separate piece from each of radiation concentrators 1. (see Figures 1-3). The purpose of support structure 2 is to mechanically support widely spaced detectors with minimum thermal conductance and to electrically connect these detectors to underlying integrated circuit chip 3. (Column 5, lines 30-33). In Figures 1-2, detectors 4 are supported by relatively thin and narrow

support ribbons 8 which bridge the interstices of the structure 2 with a low thermal conductivity material. (Column 4, lines 35-38).

Based on the amended claims 1, 19 and 33, the membrane is contiguously disposed on the frame (having reflecting surfaces) to thus form an integrated single structure. This feature makes the sensor of claims 1, 19 and 33 patentably distinct from the infrared sensor of Ennulat which has the ribbon 8 disposed on a separate structure from the reflecting surfaces. Because the membrane of claims 1, 19 and 33 is an integrated part of the frame (having reflecting surfaces), the assembling of the infrared sensor of claims 1, 19 and 33 is simpler. There is nothing in Ennulat that teaches, suggests, or motivates the integrated single structure of the membrane and the frame.

Further, the amended claims 1, 19 and 33 now include the recitation of the membrane borders that extend between the perimeter of the absorber and the reflecting surfaces. Ennulat's ribbon 8 does not provide any boarders that extend between the perimeter of the absorber and the reflecting surfaces for thermally isolating the absorber. In contrast, Ennulat teaches that the irradiance of the area 9 is concentrated on the detector 4 within an area which is about equal to the output area 10 of each concentrator 1 (Column 5, lines 13-15). As shown in Figure 2 of Ennulat, output area 10 is defined by the bottom end of the reflecting surfaces, thus the perimeter of detector 4 of Ennulat extends to the reflecting surfaces (see Figures 2-3). The detector 4 and the reflecting surfaces are separated by electrical leads 11 or feedthroughs 12 (see Figures 2-3). Adding borders of ribbon 8 to detector 4 would make the size of detector 4 smaller than area 10, being in conflict with the teaching of Ennulat.

Based on the foregoing reasons, the rejection based on Ennulat should be withdrawn. and in dependent claims 1, 19 and 33 and their dependent claims should be allowed.

Claims 4, 20, 33, 34, 36-40 and 44-46 were rejected under 35 U.S.C. 103 (a) as being unpatentable over Ennulat et al. as applied to claims 1, 5-10, 14-16, 19, 21-24 and 28-30 and further in view of U.S. 6,335,478 to Chou et al.

As stated above, Ennulat does not teach the integrated single structure of the membrane contiguously dispose on the frame or the membrane boarders of amended claims 1, 19 and 33. Chou's purported disclosure of a thermocouple does not teach or suggest such features either. There is nothing in Ennulat and/or Chou that teaches, motivates or suggests a combination thereof. Even if the references are combined, the sensors of claims 1, 19, and 33 will not be achieved for the lack of an integrated structure and the membrane boarder features.

Based on the foregoing reasons, the rejection based on Ennulat and Chou should be withdrawn. Claim 44 has been cancelled, therefore, claims 4, 20, 33, 34, 36-40 and 45-46 should be allowable.

Claims 11, 13, 18, 25, 27, and 32 were rejected under 35 U.S.C. 103 (a) as being unpatentable over Ennulat as applied to claims 1, 5-10, 14-16, 19, 21-24 and 28-30 above and further in view of U.S. 5,962,854 to Endo.

Claims 11, 13, 18, 25, 27, and 32 now depend from amended independent claim 1 or 19, both of which include a membrane contiguously disposed on the frame (having reflecting surfaces) and membrane borders not taught by Ennulat. Endo does not disclose, teach or suggest these features, either. There is nothing in the references that teaches, suggests or motivates a combination thereof, and even if the references are combined, the infrared sensor of claims 11, 13, 18, 25, 27, and 32 will not be achieved due to the lack of the membrane contiguously disposed on the frame and membrane borders. Accordingly the rejection of these claims based on Ennulat in view of Endo should be withdrawn.

Claims 41, 43, and 48 were rejected under 35 U.S.C. 103 (a) as being unpatentable over Ennulat and Chou as applied to claims 4-20, 33, 34, 36-40 and 44-46, and further in view of Endo.

Claims 41, 43, and 48 now depend from amended independent claim 33 which includes a membrane contiguously disposed on the frame and membrane borders not taught by Ennulat, Chou or Endo. Combining the references will not result in the claimed invention for the lack of

the membrane contiguously disposed on the frame and the membrane borders. Accordingly, the rejection of these claims should be withdrawn.

Claims 12 and 26 were rejected under 35 U.S.C. 103 (a) as being unpatentable over Ennulat and Endo as applied to claims 11, 13, 18, 25, 27, and 32, and further in view of U.S. 6,107,925 to Wong.

As stated hereinabove, Ennulat and Endo do not teach or suggest the claimed membrane contiguously disposed on the frame and membrane borders. Wong does not teach or suggest any thermal insulating membrane. Therefore combining of the references will not result in the infrared sensor of claims 12 and 26. Thus, the rejection of these claims should be withdrawn.

Claim 42 was rejected under 35 U.S.C. 103 (a) as being unpatentable over Ennulat, Chou, and Endo as applied to claims 41, 43, 48, and further in view of Wong.

Similar to what have been discussed hereinabove, claim 42 now depends from amended claim 33, which includes the claimed membrane contiguously disposed on the frame and membrane borders. Neither Ennulat, Chou, Endo nor Wong teaches or suggests these claimed features. There is nothing in the cited references that suggests or motivates the combination thereof. As stated earlier, the combined references will not yield an infrared sensor having a thermal insulating membrane contiguously disposed on the frame as a single integrated unit. Therefore the rejection of claim 42 should be withdrawn.

Claims 17, 31 and 47 were allowed according to the office action dated October 7, 2003.

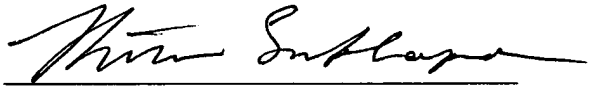
New claims 49-51 depend from allowable amended claims 1, 19 and 33 as discussed hereinabove. Thus, new claims 49-51 should also be allowable.

## CONCLUSION

Applicants believe that the application, as amended, is now in allowable form and action toward that end is respectfully requested. In the event any extension of time or payment of fee is required, Applicants hereby authorize any charges to be made to Deposit Account No. 02-0390, BAKER & DANIELS.

If any issues remain that can be resolved by telephone, Examiner Smith is invited to call the undersigned attorney at (317) 237-0300.

Respectfully Submitted,

By: 

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**CERTIFICATE OF MAILING**
**(37 C.F.R. § 1.8(a))**

I hereby certify that, on the date shown below, this correspondence is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the address above on the date indicated below.

**January 7, 2004**

By: 
Aimee J. Edwards